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Modernizing Strategic Nuclear Forces: Evolution Of The MX/Peacekeeper Missile

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MODERNIZING STRATEGIC NUCLEAR FORCES:
EVOLUTION OF THE MX/PEACEKEEPER MISSILE

SUMMARY

Evolution of a major, modern weapon system is frequently a complex, contentious process. When the system requires continuing multi-billion dollar expenditures and is centrally related to safeguarding the ultimate security of the United States, the path is virtually certain to be torturous. Development of the MX/Peacekeeper intercontinental ballistic missile reveals the range of influences impinging on the progressively protracted manner in which the U.S. modernizes its strategic offensive nuclear forces. Review of the MX experience uncovers a series of conceptual and programmatic pitfalls that U.S. policymakers and project managers must endeavor to anticipate and avoid. During the impending period of tighter fiscal constraints, it will be especially important to satisfy our most vital defense interests with maximum cost-effectiveness.

Conceived in the early 1970s, a decade and a half will have elapsed before the first Peacekeeper ICBMs join the American strategic deterrent at the end of this year. As a successor to Minuteman, MX was intended to enhance the land-based element of our "triad" of strategic nuclear forces. Specifically, MX was to counteract the Soviet threat and contribute to strategic stability by providing the U.S. with prompt, hard-target kill capability embodied in a survivable system.

Along the way, however, MX was buffeted by military service rivalries, competition for resources, shifting nuclear weapon strategies, arms control considerations, vicissitudes of U.S.-Soviet relations, domestic politics and, in particular, a struggle between the Reagan Administration and MX opponents in Congress. As a result, an envisioned plan for 200 MX missiles in a survivable basing mode has been transformed into the presently truncated program to deploy 50 Peacekeeper missiles in existing, vulnerable silos.

Based on the pivotal recommendations of the Scowcroft Commission in 1983, MX is to be complemented by a new, small, mobile ICBM, popularly christened Midgetman, to rectify the continued, destabilizing vulnerability of the land-based missile force. Increasingly, development of the small ICBM is surrounded by a disturbing aura of deja vu.

Ronald P. Zwart
March, 1986

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INTRODUCTION

This paper was prompted by curiosity about a familiar game and scale models, albeit not the sort that characterize childhood, pleasant pastimes or idle hours.

Because of its peregral, complicated, calculated play, chess is the game most suggested to describe metaphorically the strategic nuclear arms competition between the United States and the Soviet Union. The superpowers remain engaged in a continuum of move and countermove with global security and human survival resting on the outcome. The game has reached the intricate stage where winning is no longer a rational objective; not losing is paramount. The objective is to keep play in progress and in balance, so that vital issues can be resolved on lesser game boards.

As a type of talisman, many of the American players in the game are fond of exhibiting on their office desks a model of intercontinental ballistic missiles (ICBM) deployed by the U.S. and USSR. The U.S. weapons are white; the Soviet missiles are a more menacing, dark shade. The contrast emphasizes at a glance that the Soviet ICBMs are many, large and recent, whereas the U.S. missiles are small, few and dated. Considering that the model represents the most devastating weapons ever built by man, the implied disparity is stark and alarming. Does the model confirm that the game is in dangerous disequilibrium or does it deceive? Do we remain confident of our ability to "make the rubble bounce" in the Soviet Union? Should not a new white shape or two be added to put the missile model in balance?

This simple imagery masks issues of daunting complexity, choices entailing the ultimate safety of the nation and vast expenditure of funds. Debate over modernization of the U.S. ICBM force has been often arcane and emotional. Over the past decade, the MX Peacekeeper missile has been the lightning rod attracting the clash of conflicting strategies for strengthening nuclear deterrence, managing our relationship with the Soviet Union, allocating our resources and conducting our domestic politics. The controversy, costs and confusion surrounding the MX make it an ideal vehicle for exploring the manifold influences bearing on the evolution of a major strategic weapon system. These factors also provoke a second set of basic questions. Should MX have been produced or cancelled? Would the nation be sufficiently secure without MX? Are definitive answers to either of these questions possible?

During the 1980s, the U.S. has incurred a trillion dollar increase in the national debt. Considering the substantial portion of the federal budget devoted to defense, close scrutiny has been given to waste, fraud and abuse in the military sector. However, criticism has been concentrated on the price of coffee-makers, hammers and other common items to which the general public can relate. Multi-billion dollar weapon systems would be a worthier focus, because they comprise an area where major, not marginal, savings might be achieved, thereby bolstering the nation's economy, without necessarily compromising its security.

The momentum behind major weapon systems is strong and associated justifications are sophisticated. Nonetheless, each new system must surmount a series of hurdles before it is deployed with U.S. forces. Decade-long gestation periods are common as the system proceeds through conceptual, research, engineering design and development, prototype, and operational test and evaluation phases before entering full-scale production. Each step provides a decision point at which the program can be terminated if the system fails to fulfill planned requirements, or if external factors invalidate the purpose for which the system is being built.

However, history attests that rarely have major programs been abandoned once substantial investment has been made in them. This record could underscore the consistent wisdom with which weapons are conceived and constructed. Alternatively, the practice could signify that once these programs acquire political, bureaucratic and commercial constituencies, they are very difficult to derail with cost-effectiveness arguments. The tendency is to defend them and see them through to completion. Was MX such a case?

Certainly, there was ample material to use in reaching conclusions regarding MX. Preliminary research of just unclassified references revealed that mere selection of documentary sources would be challenging. One anthology, covering only the period prior to the Reagan Administration and limiting its listings to scholarly and analytical works, cited 360 MX references. Accordingly, in gathering information for this paper, first priority was given to published memoirs and official statements of senior U.S. Government policymakers. Other references were chosen in an attempt to obtain a balance of political and technical viewpoints on the overall purposes of U.S. strategic arms and the specific role of MX. This approach yielded an adequately accurate and educative cross-section of facts and opinions to trace MX through its labyrinthine evolution.

IMPETUS FOR MODERNIZATION

Over two decades ago, the first Minuteman intercontinental ballistic missile was positioned carefully into its silo and became a vital part of the nation's strategic nuclear deterrent. At that instant, Minuteman's inevitable, incremental decline to obsolescence began. For, in the world of weaponry, the moment of a system's initial operational capability (IOC) commissions the search for its improved successor. In an era of fertile minds and high technology, "state of the art" is an evanescent accolade. No system manages to merit this description for very long.

Living up to its name, however, Minuteman has effectively safeguarded American security through the 1960s and 1970s and maintains its vigil today. One thousand Minuteman ICBMs constitute the land-based element of our "triad" of strategic nuclear offensive forces. Of course, since inception, Minuteman's capabilities have been enhanced. Minuteman is far more formidable today than when first deployed. In particular, while the missile was originally

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fielded with a single warhead, there are 550 Minuteman III now with multiple independently-targetable reentry vehicles (MIRV). These versions also have greater range and, with the Mark 12A warhead, substantially better accuracy.

Despite its increased potency and extensions of effectiveness, it became increasingly clear that, due to the action-reaction cycle of the U.S.-Soviet strategic calculus, Minuteman had acquired a critical deficiency. Its survivability was in question. During the 1970s, the Soviet Union invested heavily to modernize its own ICBM force. U.S. intelligence confirmed growing numbers of large, MIRVed missiles. Of particular concern were the giant, ten-warhead SS-18s and the six-warhead SS-19s. Given sufficient accuracy, these weapons, if launched in a "first-strike" attack, posed the threat of eliminating most of the Minuteman ICBMs. This capability would leave, in concept or combat, the U.S. triad tottering on only two of its legs: long-range bombers and missile-firing submarines.

U.S. policymakers recognized this impending weakness in the mid-1970s. However, as is often the case, they were deliberating over ground that had already been plowed by the engineers and operators. By 1971, a Strategic Air Command requirement had already been expressed for a "...system-oriented, advanced technology program for a replacement strategic missile for the 1980s."¹ Organizational definition and an enduring abbreviation were in place by 1974, when the U.S. Air Force opened its Missile Experimental (MX) office at its Norton base in California.

REFINING NUCLEAR STRATEGY

These stirrings coincided with some major adjustments to U.S. strategic nuclear thinking. During the early days of the nuclear age and for as long as the U.S. enjoyed a commanding lead in nuclear weapons and the means to deliver them, Washington relied on a doctrine of "massive retaliation." As the U.S. came progressively under reciprocal threat of Soviet nuclear attack, U.S. planners shifted to reliance on "assured destruction." In this scenario, the U.S. would retain the capability to absorb a Soviet first strike, then hit back at Soviet cities and industries with a crippling blow. Behind the American strategy was the conviction that the Soviet leadership would not hazard an attack on the U.S. that would rapidly result in the devastation of the USSR. Commonly referred to as a "balance of terror," this equation had become the essence of deterrence.

1. Edwards, John. Superweapon: The Making of the MX, pg 93.

However, under the stress of increased ICBM sophistication, the equation began to break down. As articulated by Defense Secretary James Schlesinger in the mid-1970s, it became necessary for the U.S. to manifest the capability to fight a limited nuclear war, if it wished to continue to deter a catastrophic superpower conflict. U.S. strategists were persuaded that the President must have a wider range of nuclear response options. It was no longer possible to contemplate only the narrow alternatives of mutual deterrence or a full-scale nuclear exchange.

For example, assume the Soviets used their more accurate, MIRVed missiles in a preemptive attack to neutralize U.S. ICBMs. Should the President then be compelled to obliterate Soviet cities and economic infrastructure, considering that this decision would trigger a similar Soviet return strike on our own urban areas and kill countless millions of Americans? In the first instance, would it not be preferable for the President to be able to reply in kind by retaliating against those assets the Soviets would be most loathe to lose: the political leadership; the command, control and communications network; residual strategic nuclear forces; and military concentrations? Since it follows that these prized resources of the Soviet state would be the best protected, acquisition of a prompt, hard-target kill capability became a prerequisite for credibly implementing the more complex, variegated U.S. strategy.

The idea of placing select, high value, Soviet military targets at risk was not innovative. For many years, it had been part of the deterrent theory and some of the related planning devised by those responsible for U.S. security. In 1970, President Nixon had expressed his dissatisfaction with the excessively stark choices available under the doctrine of assured destruction. However, it was Schlesinger in 1974 who brought the strategic nuclear policy debate out into the open and deftly described the doctrinal modifications the U.S. was putting into effect. In the Secretary of Defense's Annual Report to the Congress for Fiscal Year 1975 and associated testimony, he confidently reviewed the logic of his case and endeavored to deflect the doubts of his critics. Employing the tightly reasoned, think-tank argumentation of a Rand researcher, Schlesinger asserted that the strategic nuclear forces of the U.S. and USSR had reached a point of "essential equivalence." However, this balance was jeopardized by the continuing, unexplained buildup of Soviet nuclear forces, especially in the category of heavy ICBMs. Prudent U.S. adjustments were required to cope with the uncertainties created by the Soviet program. The U.S. was obliged to adopt a more flexible approach encompassing a wider range of nuclear contingencies. Summarizing the need, Schlesinger stated that:

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"What we need is a series of measured responses to aggression which bear some measure to the provocation, have prospects of terminating hostilities before general nuclear war breaks out, and leave some prospect for restoring deterrence."²

Despite the cogency of his presentation, Schlesinger did not experience smooth sailing on the Hill, in the press or with the public. He was met with a wave of skepticism and controversy. His sophisticated rationale was assailed as a means for justifying the further augmentation of U.S. strategic nuclear force levels, thus adding another round to the arms race. Even worse, Schlesinger was accused of committing the U.S. to a strategy of nuclear warfighting. By countenancing the possibility of limited nuclear war, he was charged with making the use of nuclear weapons more likely. While Schlesinger held out the hope that his "measured responses" would permit escalation to be controlled, the weight of other opinion concluded that any low-level nuclear exchange was a mere -- and probably brief -- prelude to the dreaded calamity of full-scale nuclear war.

Conceding that neither he, nor anyone, could give guarantees of the extent or ultimate outcome of a nuclear engagement, Schlesinger adhered patiently, professorially to his contention that the U.S. must take steps to "...acquire selective and discriminating options that are intended to deter another power from exercising any form of nuclear pressure." Rejecting the allegations that his course would lead to superpowers' acceptance of nuclear warfighting, Schlesinger insisted that his strategic options "...do not invite war; they discourage it."³

MATING WEAPONS AND STRATEGY

Additionally, Schlesinger sought to allay charges that his strategic excursion would entail an expensive expansion of nuclear forces. He emphasized that most of what he advocated could be accomplished, at least in the near term, by retargeting existing U.S. assets. Nonetheless, Schlesinger did request research and development funds for a heavy throw-weight ICBM, to facilitate a more efficient hard target kill capability.

2. Schlesinger, James R. quoted in Pranger, Robert J. and Labrie, Roger P. (editors), Nuclear Strategy and National Security Points of View, p. 97.

3. Ibid, p. 100.

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In what one author has called a "turning point in the history of nuclear weaponry,"⁴ Schlesinger asked for \$37 million to cover:

"...advanced technology leading to the development of an entirely new ICBM. We are considering the technologies for both a new large payload fixed base missile which could be launched from the existing Minuteman silos, and a new mobile missile, either ground or air launched."⁴

Though President Gerald Ford replaced Schlesinger with Donald Rumsfeld in 1975, the new Secretary of Defense endorsed his predecessor's doctrine of flexible nuclear response and acquisition of the necessary hardware to fulfill the strategy. The aerospace engineers had not been idle. To threaten hard targets, Air Force recommended a big missile, 92 inches in diameter. Evidently, Schlesinger's dual investigation of a large, fixed silo missile and a mobile missile had been merged into a single new ICBM, the MX. The missile's size satisfied the Air Force's priorities for throw-weight and accuracy, but compromised the mobility requirement, a key factor in determining system vulnerability.

SERVICE RIVALRY WITHIN THE TRIAD

Selection of the large diameter missile would settle another issue. A second element of the triad was being modernized in earnest. Navy's plans were in hand for a generational advance in the sea-based deterrent. A new class of larger ballistic missile submarines would go to sea. These Trident submarines would mount more launchers and their SLBMs would provide greater accuracy, yield and range. Some planners considered that significant economies could be achieved if the evolving Air Force MX and Navy Trident missiles used common booster stages. Air Force raised technical objections to such compatibility. However, Air Force had been acutely conscious since the 1950s that the Navy's part of the triad, concealed beneath the oceans, was inherently far less vulnerable than Strategic Air Command ICBMs in their fixed location silos. Traditionally, ICBMs possessed advantages of accuracy, yield and range. If Trident offset these advantages and offered invulnerability also, there was a good chance that U.S. nuclear strategists would be persuaded to transfer more of the deterrent mission, along with associated force levels and funding, to the Navy. Such a shift would seem temptingly feasible if there were substantial commonality between Trident and MX. With its 92 inch diameter, MX was too large for a Trident missile tube. It could not go to sea; another place would have to be found for it.

RETHINKING MX UNDER CARTER

In the outgoing Ford Administration's lame duck budget, MX was recommended for full-scale development, with deployment envisioned for 1983. An accelerated program was supported and \$289 million sought, but the Carter Administration refused to be

4. Edwards, op. cit., p. 75

stampeded into endorsing MX. Deciding to sift the alternatives carefully, the new leadership cut MX funding in half, returned the project to R&D status, and embarked on its own review of U.S. nuclear strategy and weaponry.

President Jimmy Carter brought his own agenda to the White House and arms control; not weapons development, dominated his list. In his inaugural address, Carter had highlighted his desire to rid the planet of nuclear weapons. He directed his personal attention and that of his chief national security advisors to curbing the nuclear arms race between the superpowers. As Carter later recalled, "...my most difficult and important task was to negotiate an agreement with the Soviet leaders, to be known as the SALT II treaty."⁵ Drawing on the earlier provisions of SALT I and the framework discussed by President Ford with Leonid Brezhnev in late 1974, Carter sketched in the dimensions of a much more ambitious strategic arms control proposal to present to the Soviets. It would seek to press beyond mere limitations to achieve reductions.

Within two months of taking office, Carter dispatched Secretary of State Cyrus Vance to Moscow to open formal negotiations. Vance conveyed in March 1976 the President's preferred offer, which included:

...lessening the vulnerability of either nation to a first strike by the other. It also imposed stringent limits on qualitative improvements in weapons and reduced the threat from those missiles of most concern, such as the very large Soviet intercontinental missiles... and MX intercontinental missiles.⁶

However, the Soviets did not share the new American Administration's enthusiasm for a bold move toward deeper cuts in strategic arsenals. An arms control dialogue had been initiated between Carter and the Kremlin, but Vance's proposals were rebuffed and his mission was largely a failure. Carter had been willing to sacrifice MX if it had proved possible to obtain significant reductions in the Soviet ICBM force, but Moscow was not, at this point, ready to entertain such a sweeping exchange. Rather, the Soviets opted to build conservatively upon their negotiations with preceding American governments, at least until they were better able to take stock of this latest and little-known occupant of the White House.

COMMITTING TO MX

Though chagrined by the Soviet's initial response, the Administration doggedly devoted the next two years to hammering out the details of Carter's cherished SALT II agreement. Early in this period though, the U.S. side realized that MX could no longer be made part of any barter. While top Administration officials first believed they had the benefit of ample time before committing themselves to a program for actually deploying the MX, new

5. Carter, Jimmy. "Keeping Faith", p. 216.

6. Carter, op. cit., p. 219.

intelligence information deprived them of further flexibility. They had been relying on estimates that improvements in the guidance systems of Soviet ICBMs would not provide sufficient accuracy to threaten Minuteman survivability until the late 1980s. By late 1977, intelligence analysts had revised their timeline and concluded that the operational, ~~10: MIRV SS-18, not some future-generation~~ ICBM, already made America's land-based deterrent vulnerable. This was a destabilizing development that the U.S. would be compelled to redress.

In a volte-face, U.S. SALT II negotiators took the position that both superpowers should be permitted to add one new ICBM to their respective inventories. In a role-reversal, it was now the Soviet side that was prepared to preclude, at least for the expected five-year duration of the agreement, the introduction of a new ICBM system. The Soviets recognized that the U.S. would require the MX to match the capabilities of their SS-18. They would have been delighted to preserve their key advantage at the bargaining table. Realistically, however, the Soviets finally decided that even the most adroit diplomacy would be unable to convince the Americans to forego MX under the provisions of SALT II. The ICBM imbalance was simply too glaring.⁷

Thus, after considerable temporizing and exploring arms control possibilities with the Soviets, the Carter Administration resigned itself to proceed in earnest with the MX program. In early 1979, during the course of his budget presentations for fiscal year 1980, Secretary of Defense Harold Brown explained to Congress the deliberative approach the Administration had taken toward ICBM modernization and the factors that persuaded the Executive Branch to go ahead with MX. First, he validated the need to maintain the synergism of the triad, quickly adding that upgrading of its land-based element would not compromise U.S. efforts to conclude a SALT II agreement with the USSR:

Even though we have known for some time that the survivability of the ICBM force would erode, we have not been driven into panicky and costly crash programs, largely because the other two legs of the Triad have been and remain in good working order...If we are to remain fully confident in the future, when a different leg of the Triad might become vulnerable, we must restore the ability of our ICBMs to ride out an attack, if that should become necessary. Accordingly, we intend to proceed with full-scale development of a new ICBM ... and have insured that the SALT II agreement will leave open the alternative of deploying a mobile ICBM.⁸

7. Talbott, Strobe, Endgame: The Inside Story of SALT II, p. 160.

8. Brown, Harold. Department of Defense Annual Report, Fiscal Year 1980, p. 17.

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Quite apart from the role MX would play in preserving the U.S. nuclear deterrent, Brown also stressed the international political perceptions that influenced this Administration program:

Given the past importance of our ICBM force and the traditional emphasis of the Soviets (and of many military observers throughout the world) on ICBMs, it can be argued that a decision not to modernize the ICBM force would be perceived by the Soviets, and perhaps by others, as demonstrating U.S. willingness to accept inferiority, or at least as evidence that we were not competitive in a major (indeed, what the Soviets have chosen as the major) area of strategic power.⁹

Not just the Soviets, but the world was watching and the U.S. had a superpower reputation to uphold. Those charged with deciphering U.S. strategic nuclear intentions undoubtedly read the Secretary's Annual Report with care. However, it is likely that their attention was drawn more to Brown's budget figures than to his somewhat tortured exposition of defense policy. The proverbial "bottom line" showed that the Pentagon sought \$670 million for MX development in FY 80, and proposed for authorization twice that amount (\$1.3 billion) for FY 81.¹⁰

In case the Soviets or any other observers missed the point, the Carter Administration elected to underscore clearly and publicly its commitment to the MX program. On June 8, 1979, one week prior to the President's departure for Vienna to meet with Brezhnev and sign the SALT II treaty, Washington announced that Carter "...had decided to approve full-scale development of a large, ten-warhead version of the MX ICBM for mobile deployment."¹¹

This statement reflected the formal conclusion of two years of debate within the National Security Council. On the eve of the Carter-Brezhnev summit, the President's National Security Advisor, Zbigniew Brzezinski, urged that the U.S. take to Vienna an unequivocal position on MX to strengthen the American hand. Based on final deliberations of June 4-5, the U.S. projected strategic nuclear force would include two hundred of the large MX ICBMs, which would be capable of moving among some sort of protective shelters, in a manner that would make them both survivable and, for arms control purposes, verifiable.¹² The precise basing mode would be determined later.

9. Ibid, p. 118.

10. Ibid, p. 180.

11. Vance, Cyrus. Hard Choices, p. 137.

12. Edwards, op. cit., p. 199.

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Certainly, the Administration's declaration for MX was directed also at a domestic audience. After laboring for three years, the President had a SALT II document which he and his Soviet counterpart were prepared to sign. At home, however, Carter still had to deal with a broad spectrum of SALT II critics, ranging from moderately dubious to implacably opposed. While the White House remained optimistic, it was not certain that the Senate would ratify the treaty the President brought back from his summit. A favorable MX decision could help gain crucial support at the Pentagon and on the Hill for SALT II. As Secretary of State Vance noted:

Politically, I believed the MX production decision, to be followed shortly by a basing decision, would relieve the Joint Chiefs' concern about the long-term trends in the strategic balance and strengthen their endorsement of SALT. The MX decision, when added to our planned growth in defense spending, would also reassure those senators concerned about trends in the military balance.¹³

BANE OF THE BASING MODE

Still, whether the MX decision was justified on intellectual grounds of maintaining the nation's strategic deterrent, on enhancing the U.S. superpower image, on negotiating with the Soviets, or as the political price of functioning in Washington, Carter was not completely comfortable with the outcome. The as yet unresolved loose end regarding an MX basing mode was disconcerting. Before leaving for Vienna, he lamented that all the basing options he had received were "complicated and expensive to implement...I discussed my disappointment with the weekly memorandum on mobile basing. It was a nauseating prospect to confront, with the gross waste of money going into nuclear weapons of all kinds."¹⁴

The theorists and engineers at the Pentagon were as aware of the President's dissatisfaction as they were of the enormous complexities of trying to cut the Gordian knot of the MX basing problem. As Secretary of Defense Brown put it in a plaintive and prescient observation:

Designing a missile is much simpler than providing basing for it. The missile design we have aimed at is flexible enough to be used either with an MPS (multiple protective shelter), an air mobile system or a Minuteman silo -- or a land mobile or underwater barge-mounted system.¹⁵

13. Vance, op. cit., p. 137.

14. Carter, op. cit., p. 241.

15. Brown, op. cit., p. 119.

Actually, Brown's eclectic basing variations for the nation's next ICBM gave only a glimpse of the possibilities that had been investigated to differing degrees. Over the years, there had been more than thirty proposals for alleviating or eliminating the vulnerability of the fixed silos characterizing America's land-based deterrent.

The inverse relationship between mobility and vulnerability had long been appreciated by U.S. strategists. One of the original options for deploying Minuteman envisioned putting it in boxcars that would be moved about the nation's rail system. At the start of the 1960s, President Kennedy looked forward to the day when all elements of the U.S. strategic nuclear deterrent would be mobile. But in this early period, when the U.S. possessed a preponderant strategic force advantage over the Soviet Union, Washington could take comfort in the overall invulnerability of the triad, without fretting excessively about the independent security of each leg. Considered alone, none of legs was ideal; each had significant shortcomings. It was the net capability that counted and the land-based ICBMs contributed major strength to the blend.

Apart from carrying much of America's megatonnage, the missiles mounted in silos offered the most reliable and secure command, control and communications arrangements. The ICBMs afforded the National Command Authority a prompt means of retaliation and, due to a reassuring combination of accuracy and yield, provided some counterforce capability. Lastly, we could be confident that the ICBMs would be able to penetrate Soviet defenses to strike their targets. Vulnerability might eventually become a concern, but with 1,000 Minuteman and 54 Titan ICBMs dispersed in missile fields in the western United States, it would be many years before the USSR would acquire the ICBM force level to attack them effectively. Enough U.S. ICBMs still would escape to deal the Soviets a devastating blow, without even calculating the damage the remainder of the triad would inflict.

However, with the advent of MIRV technology, the U.S. appreciated that it would no longer be necessary for the Soviets to expend an ICBM on each American silo. The exchange ratio would become much more favorable for the Soviets should, for example, one Soviet missile carry sufficient, independently targetable warheads to engage ten Minuteman silos. This "fractionation," coupled with accuracy improvements, could theoretically jeopardize virtually the entire U.S. land-based deterrent. If the Soviets imitated the U.S. advance into MIRVing, as seemed predictable, there was suddenly smaller solace in stressing that any of our MIRVed ICBMs surviving a Soviet first strike would be able to destroy more than one target in the USSR during a retaliatory U.S. second strike.

As early as 1966, some U.S. weapons specialists had discerned the implications that MIRVs would have for U.S. ICBMs in fixed silos. One expert took his case to the Pentagon, where he lobbied unsuccessfully for putting Minuteman missiles on vehicles and moving them between shelters.¹⁶

16. Edwards, op. cit., p. 54.

For awhile, rather than rely on mobility with or without some form of deception, it appeared that the answer to ICBM vulnerability could be found in active defense. The drive to develop an anti-ballistic missile (ABM) system gained substantial momentum and, incidentally, promised to give the U.S. Army a part in the resultant, more complicated strategic equation: the technical feat of "hitting a bullet with a bullet" (albeit with a nuclear-tipped bullet) was a challenge for Army's R&D community. Besides, achieving an effective, reliable defense would be enormously expensive. The Soviet Union would be obliged to match the U.S. effort and vice versa. In fact, the USSR already possessed a vastly greater conventional air defense network than the U.S. Washington had to consider that the Soviets' experience in this area might enable them to surge ahead in fielding an ABM capability. Once begun, ABM protection might spread to cover not only silos and command centers, but cities and economic targets as well. Hence, an ABM embellishment to the superpower strategic nuclear balance could undermine the stabilizing principle of mutually assured destruction. Attesting to the danger and futility of an ABM competition, the U.S. and USSR agreed in 1972, at the conclusion of their first series of Strategic Arms Limitation Talks (SALT I), to restrict severely ABM deployments. Fourteen years later, SALT I remains the only fully consummated strategic arms control treaty between the two superpowers.

With missiles not allowed to defend missiles, the Air Force in the mid-1970s favored a "covered trench" option for basing the envisioned MX ICBM. The missile would move through an underground tunnel on a long, linear track to different launch points. However, studies eventually convinced the engineers that the shock wave from a nuclear attack would be transmitted through the tunnel and incapacitate the missile. Attempts to shield the MX by baffling the shock wave were in vain.¹⁷

Another idea was to mount MX on vehicles and simply truck it about the highways or across U.S. military installations. However, this ostensibly simple option was fraught with difficulties. In the open, on the surface, MX would be vulnerable to a Soviet barrage attack. Further, the large missile and its carrier would be too heavy to use existing roadways. Above all, the American public would be most unlikely to accept the notion of casually sharing its interstates with a strategic nuclear weapon system. Lastly, the security measures required for protecting MX in this mode against accidents or terrorism transcended the boundaries of common sense.

Since there were obvious failings with several of the mobile alternatives, one school suggested retaining fixed silos for MX, but hardening them sufficiently to permit them to survive a strike by Soviet ICBMs. However, extrapolations of warhead yield and accuracy indicated that this approach would be pouring additional concrete and money down a rathole. If the missiles themselves were not destroyed, it was likely that anticipated nuclear near misses would seal them impotently in their silos.

¹⁷. Talbott, op. cit., p. 167.

MX WITH MULTIPLE PROTECTIVE SHELTERS

As the seemingly endless analyses of MX basing options continued, a coalition began to form in behalf of some type of "shell game." Essentially, the technique was to "...build many more holes than missiles, then move the missiles at random from hole to hole, thus confounding the Soviets about which holes were live targets and which were decoys.¹⁸ This was far from a novel concept, but given the more active concern about U.S. ICBM vulnerability, the proposal had attracted new interest. It certainly bred a litter of acronyms. Labeled FALPIS (fixed alternate launch point ICBM system) in 1978, the plan was trimmed to the more crisp and evocative ALPS (alternate launch point system). As it migrated through the bureaucracy, the idea next emerged as MAPS (multiple aim point system), then became unpronounceable: MVPS (multiple vertical protective structures). By 1979, the popularity of vertical orientation faded, the nondescript "structures" gave way to a more functional term, and the trilateral MPS (multiple protective shelters) came into vogue.¹⁹

With the Vienna summit meeting behind them, the Soviets put on notice about U.S. intentions to produce the MX, and the SALT II treaty still to sell to the Senate, Carter Administration officials spent the summer of 1979 refining the particulars for basing the new strategic missile. The President was briefed at a National Security Council meeting in September and approved the recommendations for an MX/MPS system, thereby terminating -- so it was thought -- six years of vexing debate and indecision.²⁰

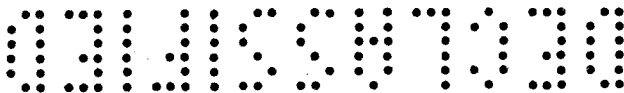
President Carter selected a design that would deploy deceptively 200 MX missiles among 4,600 hardened, horizontal shelters located in the Great Basin area of Nevada and Utah.²¹ The shelters would be arrayed in forty complexes or "racetracks." Each MX missile would be able to circuit around loop roads (christened "Beltways" by some Washington analysts) connecting the shelters, which would be more than a mile apart. The almost 100-ton missiles would be carried by specially-built heavy vehicles called transporter-erector-launchers (TEL). They would be able to haul the MX from one shelter to another at a speed of 10-20 miles per hour. Since any in-bound Soviet ICBM would need a flight time of about thirty minutes, the MX would be able to shift shelters rapidly enough -- assuming adequate warning -- to defeat Soviet targeting even if precise MX location had been compromised.

18. Ibid, p. 168.

19. Talbott, op. cit., p. 175.

20. Edwards, op. cit., p. 205.

21. Office of Technology Assessment, MX Missile Basing, p. 14.



The schedule for marrying MX and MPS envisioned initial operational capability in 1986. Hence, in the late 1980s and into the 1990s, the number of warheads included in the land-based leg of the triad would increase considerably. The small quantity of aging Titan ICBMs would be retired, but the existing inventory of 450 single-warhead Minuteman II and 550 triple-MIRV Minuteman III would remain. By about 1990, the 2,100 Minuteman warheads would be almost doubled by addition of 200 MX, each with ten MIRVs. In the 1990s, if the Minuteman force were phased out fully, and even if no more MX or successor ICBMs were produced, the U.S. land-based deterrent would be assured of still having approximately the same capacity it had in the early 1980s to attack 2,000 targets.

Naturally, the Air Force did not consider 200 MX to constitute a definitive upper limit. It was more prudent to think of 200 as an acceptable initial objective while the U.S. continued to assess the dynamics of the Soviet strategic nuclear threat. One of the essential attributes of the MX/MPS was its expandability. For example, if the Soviets increased their strategic offensive potential so that they were able to devote 7,000 reentry vehicles (RV) to striking the MX/MPS system, the U.S. might require 360 MX scattered among 8,250 shelters.²²

This unbounded aspect of the MPS concept and its implication for future defense spending disquieted the White House. President Carter had grown testy over the loose cost estimates attached to the MX/MPS proposal. A massive construction project in a remote huge section of the American west was entailed. There were no sound precedents to use to compute reliably the extent of expenditures which ensuing federal budgets would have to absorb. Pressed for parallels, people were suggesting that the shelter program would surpass the level of resources and effort it had taken to build the nation's interstate highway system. Others observed that there wouldn't be enough cement west of the Mississippi to satisfy the MPS requirement for concrete.

As might be expected, the Department of Defense's best projection for the package of 200 MX and 4,600 shelters was on the low side: \$23 billion. The Office of Management and Budget insisted that \$40 billion was a more accurate figure. The flagrant disparity was too much for the President's tolerance and he charged his aides to compare their data and agree on a single estimate. Secretary of Defense Brown and OMB Director McIntyre returned and informed Carter that MX/MPS would cost \$33 billion, though this sum may have been similarly soft:

This figure, that was later said to have arisen from the most careful cost estimates produced by the most complex models on the most sophisticated computers, was actually a split-the-difference compromise between Harold Brown and James McIntyre.²³

22. Office of Technology Assessment, op. cit., p. 18.

23. Edwards, op. cit., p. 204.

If this allegation were true, the two officials may have arrived instinctively at a reasonable number. Two years later, Congress' Office of Technology Assessment, using fiscal year 1980 dollars,

...reviewed Air Force cost estimates and prepared an independent estimate using a comparable methodology. OTA's estimate of \$37.2 billion for acquisition costs of the system is within 10 percent of the Air Force estimate of \$33.8 billion and is within the accepted range of uncertainty.²⁴

In January 1980, when Secretary of Defense Brown sent his annual report to the Congress for fiscal year 1981, rationale and funding for MX had become a prominent part of the budget. While there was still wistful attachment by the Carter Administration to the unratified SALT II treaty, the sharp reality of contesting superpower priorities had deflated the President's dream of consummating a major arms control accord with Moscow. Further, despite hopes of shielding SALT II from other contentious U.S.-USSR issues, detente itself was now in tatters. In late December 1979, the Soviet Union, under the flimsiest of pretenses, had invaded Afghanistan. The U.S. and its allies were already extremely sensitive to safeguarding their access to oil supplies in the volatile Persian Gulf area. Further, since November, the White House was preoccupied with endeavoring to secure the release of the American Embassy staff held hostage in Iran. As Dr. Brzezinski put it, the sweep of states from Pakistan to the Horn of Africa had become an "arc of crisis" for the U.S. A scant week before the Brown report to Congress, Carter had issued a warning to the Soviet Union in his State of the Union address. In what newsmen would later term the "Carter Doctrine", the President proclaimed:

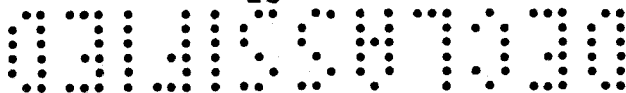
Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.²⁵

This tough tone was echoed by Brown in his own report to Congress. Reflecting on the latest international developments, he asserted that the U.S. might be at a critical turning point in its history. The Secretary counseled that:

We must decide now whether we intend to remain the strongest nation in the world. The alternative is to let ourselves

24. Office of Technology Assessment, op. cit., p. 22.

25. Carter, op. cit., p. 483.



slip into inferiority, into a position of weakness in a harsh world where principles unsupported by power are victimized, and become a nation with more of a past than a future.²⁶

In this competitive environment, at a time when the U.S. was being sorely tested, Brown stressed it was imperative that friends and enemies alike, who were obliged inescapably to keep a running account of comparative American and Soviet power, remain convinced that the U.S. was not faltering. This was of paramount importance as far as strategic nuclear forces were concerned. As he put it:

"The behavior of all those nations will be influenced by their judgments about the state of the nuclear balance...We need forces of such a size and character that every nation perceives that the United States cannot be coerced or intimidated by Soviet forces...And although the United States need not match Soviet capabilities in all respects, we must also insure that the Soviet Union does not have a monopoly of any major military capability."²⁷

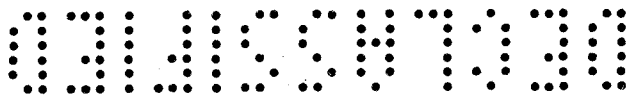
Appraising the result of the formidable qualitative and quantitative growth of the Soviet Union's strategic offensive nuclear forces during the preceding decade and citing the continuation of this trend, Brown remarked that our principal adversary had gained the hypothetical ability to destroy 90 percent of U.S. ICBM warheads. The essential equivalence provided by the U.S. triad was threatened seriously by this destabilizing development. Accordingly, Brown asserted, "Reducing the vulnerability of the land-based ICBM force is the highest priority strategic initiative in the five-year program."²⁸ The nation had to have a survivable, hard-target ICBM and the answer was MX/MPS.

With accuracy enhancements made possible by its Advanced Intercontinental Reference System (AIRS), the MX missile would enable the U.S. to attack the full spectrum of Soviet targets, as required by the Administration's adherence to a nuanced, countervailing strategy. The absolutely critical criterion of survivability would be met by the Multiple Protective Shelter basing mode. Elaborating, Brown explained the features of the system which would prevent the Soviets from determining exactly where the missiles were and thus deny Moscow the prospect of a confident first strike. In the parlance of the experts, MPS conferred PLU (Position Location Uncertainty). As refined, each MX cluster would present 23 hardened concrete shelters containing 1 MX missile and 22 decoys. The decoys would have properties to preclude Soviet surveillance satellites from

26. Brown, Harold. Department of Defense Annual Report, Fiscal Year 1981, p. 14.

27. Ibid, p. 68.

28. Ibid, p. 127.



discriminating between the many mock missiles and the one real weapon. Location uncertainty would be maintained by randomly and intermittently exchanging the position of the single MX and the various decoys.

However, while maximizing deception, which was the very essence of the MPS concept, the Administration had not neglected arms control aspects. The U.S. needed to assume that the Soviet Union would endeavor to alleviate the vulnerability of its own fixed silos by turning to mobile ICBMs. Therefore, to establish a precedent for anticipated Soviet activity, any system fielded by the U.S. must allow for verification measures. The MPS design accommodated this paradox by providing no links between clusters and limiting access to each cluster, probably through a maintenance facility building. Once a missile was deployed to a cluster, the single access would be severed. Presumably, the Soviets could be afforded a way of monitoring the initial deployment of an MX to a cluster and any subsequent one-for-one replacements. Thus, by relying independently on "national technical means," it would be possible for the Soviets to keep a reliable count of the MX missiles and assure themselves that each cluster concealed only one ICBM, not a duplicitous maximum of 23.

For accelerating development of MX, the Pentagon sought more than \$1.5 billion in the fiscal year 1981 budget, substantially more than double the request for the preceding year. Further, DOD informed Congress that it planned to ask for almost \$2.2 billion for MX in fiscal year 1982.²⁹ This would bring MX fiscally abreast of the one major strategic weapon system the Carter Administration had diligently prosecuted: the Trident submarine. At last, MX had acquired undeniable momentum.

The program stayed on track without much fanfare in 1980. With an increasingly beleaguered Administration preoccupied by other issues, there was neither interest nor need to revisit the major strategic arms programs. The White House was trying to tame inflation, energy and other economic problems and resolve the interminable Iran hostage dilemma, so that it could concentrate on fighting -- and having some prospect of winning -- the 1980 national election. Republicans were assailing the Carter Administration's defense record and claiming that the country had been exposed to a "window of vulnerability."

Ronald Reagan made the defense and other charges stick, so when Harold Brown reported to Capitol Hill for the last time in January 1981 and explicated his lame duck budget for fiscal year 1982, he reiterated the efficacy of the policies and programs in

²⁹. Ibid, p. 130.

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progress and defended the accomplishments of the past four years. In particular, Brown recapitulated the threat Soviet SS-17, SS-18 and SS-19 ICBMs -- already a total of 750 missiles mounting 5400 MIRVs -- posed to the U.S. land-based deterrent. He repeated that this factor made MX America's "highest strategic modernization priority." With its increased survivability, the Secretary emphasized that "...MX will give us a land-based retaliatory force that poses a formidable challenge to Soviet targeters and provides second-strike capabilities consistent with the range of options subsumed by our countervailing strategy."³⁰

Additionally, MX had broken free of rhetoric and paper proposals. Development funding was peaking at \$2.4 billion in fiscal year 1982, with an authorization of almost \$1.8 billion for initial missile production requested for fiscal year 1983. MX accounted for one-sixth of 1982 funding sought for strategic offensive forces, but half of the funding in this category for the five-year defense program encompassing fiscal years 1982-86. Brown also revealed that the first of twenty MX flight tests was scheduled for 1983. Milestones were being met for having ten MX deployed in mid-1986 and the full force of 200 fielded before the end of the decade.³¹

In his final presentation to Congress, Brown left no doubt about the basing mode as the raison d'etre for MX. Otherwise, U.S. strategic flexibility would be critically diminished and serious instability would obtain. As Brown portrayed it:

We must ensure that the United States is not placed in a 'use it or lose it' situation, one that might lead to unwarranted escalation of the conflict. That is a central reason why, while the Soviets cannot ignore our capability to launch our retaliatory forces before an attack reaches its targets, we cannot afford to rely on 'launch on warning' as the long-term solution to ICBM vulnerability. That is why the new MX missile should be deployed in a survivable basing mode, not in highly vulnerable fixed silos.³²

Resting on the weight of this logic and other argumentation, Brown concluded his tenure at the largest department in the Government by concluding: "I depart with confidence that our successors will build vigorously and effectively upon this foundation."³³

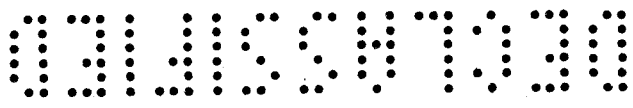
As far as MX/MPS was concerned, some would say that Brown's confidence was only half merited; others would say he was entitled to no confidence at all.

30. Brown, Harold. Department of Defense Annual Report, Fiscal Year 1982, p. 48.

31. Ibid, p.128.

32. Ibid, p. 41.

33. Ibid, p. xi.



REAGAN ARRIVES: MX WITHOUT MPS

When the Reagan Administration took office, it turned with determination to dispel the atmosphere of defeatism against which the new President had campaigned so vigorously and successfully. Internationally, America must be perceived again as strong, sure and resolute. Domestically, the nation needed positive policies and programs to restore its morale, so that, in the western idiom now in vogue in the White House, the country could "stand tall." Much political capital had been made by the Reagan conservatives about the dire degree to which U.S. military might had deteriorated, leaving the Soviets with alarming advantages. A prompt corrective had to be applied. In the Pentagon, Secretary of Defense Weinberger eagerly took up his mandate to "rearm America."

In reviewing the bidding between the U.S. and USSR, Weinberger turned quickly to the high cards in his Defense deck. He found that there were "...severe inadequacies inherited in the realm of strategic and other nuclear weapons."³⁴ Though Weinberger was a highly experienced government executive, defense in general, and strategic forces in particular, were areas where he had limited background. Delivering on the promise to redress the strategic imbalance between the superpowers would be a complex undertaking, with a bountiful number of multi-billion dollar options, committed proponents for each proposal, and, thus, inherently tough political choices to make.

For example, while the President wanted the MX missile to counter the Soviet surge in enlarging and improving their ICBM force, the Administration was not sold on the multiple protective shelter basing scheme. The Carter plan to place MX/MPS on public lands in the Great Basin of Utah and Nevada was sound as far as the geotechnical requirements for the enormous construction project were concerned. The remote site selected was a vast, flat tract of desert, with not too much bedrock and a moderate climate without too much snow and ice.³⁵ Though the location seemed ideal, it turned out to have an overwhelming disadvantage: most of the citizens of Utah and Nevada didn't want any part of MX/MPS. Potential deployment of the system there

...produced one of the most unique coalitions of opposition groups in the history of American politics - environmentalists, farmers, ranchers, miners, hunters, Mormons, and even the American Indian. Perhaps on no other issue has such a widely divergent set of groups come together to oppose a government project.³⁵

34. Weinberger, Caspar W. Department of Defense Annual Report, Fiscal Year 1983, p. I-18.

35. Hoover, Robert A., The MX Controversy, p. 27.

This constituency now had a powerful audience in Washington; a more attentive President was now living in the White House. As a Californian, Reagan was sympathetic to the objections raised by other westerners, especially when their spokesmen were a trio of Republican senators, who had been particularly supportive over the years. Senators Jake Garn, Orin Hatch and especially Paul Laxalt, who was said to be the President's closest friend on the Hill, enumerated the problems MX/MPS posed for their states. Their part of the country was comparatively pristine and lightly populated. The envisioned project would alter the land forever and inflict severe socio-economic disruption. To appreciate the impact, one needed only to consider the Air Force's estimate that

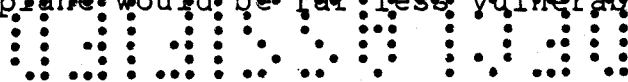
...the construction force would peak at twenty-five to forty thousand workers, plus dependents, that the job would require three million tons of cement, ten thousand miles of new roadway, a total deployment area of seven thousand square miles, and more than a tenth of the perennial yield rainfall of the area.³⁶

Furthermore, the Air Force assertion that MX/MPS had value as a "sponge" in a nuclear war, since it would attract and absorb a large, disproportionate number of Soviet warheads, may have cheered some strategists and war gamers in Washington, but this feature had no appeal to the folks back home. The senators did not want the patriotism of their people impugned, but they pressed for reevaluation of the MPS basing mode.

THE TOWNES COMMITTEE

Sensing the political turbulence, Weinberger saw the benefit of pausing to get an outside opinion. In early 1981, he asked Dr. Charles Townes, a Nobel prizewinning professor of physics at the University of California, Berkeley, to form a committee to reassess the MX basing options. Through the spring and summer, the fifteen experts and luminaries on the Townes' panel -- along with analysts elsewhere in the Executive Branch and on the Hill -- sifted the alternatives anew. Besides reviewing the pros and cons of MPS, work concentrated on putting MX aboard aircraft, providing MX with a ballistic missile defense system or devising deep underground basing.

With the aircraft variant, MX could be carried by large C-5A transports and launched aloft. At one stage, Secretary Weinberger was reported to be an advocate of this option. However, in essence, the crisis vulnerability of this mode did not differ greatly from the existing B-52 bomber leg of the triad. The U.S. assumed that Soviet ballistic missile-firing submarines positioned offshore would be used against the bomber bases. At best, this gave our strategic offensive aircraft only fifteen minutes to escape destruction if they were on the ground. Aircraft survivability therefore put a heavy premium on advance warning of attack. To compensate for this shortcoming, the Townes panel suggested that a new, high endurance aircraft could be designed to carry MX. By remaining airborne for long periods, such a plane would be far less vulnerable. However,



36. Edwards, op. cit., p. 214.

such a system might well be the most expensive alternative of all, primarily due to the manpower needed and high operational and maintenance costs. One study estimated that, "A continuously airborne force of 75 aircraft (150 MX missiles) could cost \$80 billion to \$100 billion (fiscal year 1980 dollars) to acquire and to operate for 10 years after full deployment."³⁷... Additionally, there were at least two reasons why the Air Force had no enthusiasm for this option. Air Force already had higher priority irons in the fire for acquiring new aircraft for the triad. First, it wanted the B-1. Later, it would bring in the Advanced Technology (Stealth) Bomber. There was nothing to be gained by diffusing these efforts by overreaching for the conceptual airborne MX platform. The other adverse aspect was that the system necessarily involved combining missileers and pilots. While both groups belonged to the Strategic Air Command, the mix of specialities was uneasy and undesirable.

Familiar difficulties continued to beset the prospect of protecting MX with some type of ballistic missile defense. The Army was investigating what it termed a low altitude defense system (LOADs). This idea envisioned deceptively deploying a mobile unit consisting of a radar and nuclear-armed interceptor missiles within each MPS cluster. This endoatmospheric system could operate independently or perhaps be joined by an exoatmospheric system to form a "layered" defense. However, the technologies for both systems were unproved. A major obstacle was discriminating between decoys and other penetration aids and actual warheads. Another was the ability of LOADs to function in the nuclear environment created by detonation of the warhead on the first interceptor missile launched. Further clouding the concept was the fact that development or deployment of either system would require amendment or abrogation of the ABM treaty concluded under SALT I.³⁸

Deep underground basing was a concept recommended for further research; it was not an active option for the mid-1980s. The thought was to bury MX far enough beneath the surface to make the missile invulnerable to nuclear attack. Unfortunately, no one had yet solved the puzzle of how to launch MX from its secure, subterranean "citadel". This seemed to be a wry variation on "use it or lose it" of the "launch on warning" school. Deep basing seemed to be more a case of neither losing MX, nor being able to use it.

In the end, the Townes' committee concurred that the U.S. needed an ICBM as a successor to Minuteman that would possess a hard-target kill capability as part of the national deterrent. The panel did not give Weinberger a definitive answer to the basing riddle, but there was a consensus that, despite concerns over vulnerability, the triad had to have an upgraded land missile. The Multiple Protective Shelter system was retained as an active option, with some members recommending that the initial objective be markedly less than the 4,600 shelters in the Carter plan. They

37. Office of Technology Assessment, op cit, p: 38.

38. Ibid, p. 32.

suggested that perhaps a more modest beginning with 100 MX in 100, or up to 1,000, shelters was in order. Still, the experts observed that, if the Soviets rapidly increased their arsenal of MIRVs, an MPS system of any dimension could be overwhelmed. In this event, there would be less logic in deploying half of the proposed 200 MX in substantially less than half of the proposed 4,000 shelters in the baseline concept. On one point, the Townes' group was unambiguous: placing MX in existing (Titan or Minuteman) silos should be firmly rejected.³⁹

REAGAN'S STRATEGIC FORCES MODERNIZATION PACKAGE

The Administration blended the Townes' report with a host of other ingredients and concocted the piece de resistance of its promised program for rejuvenating America's defenses. At a White House press conference on October 2, 1981, President Reagan announced the elements of his plan for improving U.S. strategic nuclear forces. Hailed by Secretary Weinberger as "the most important weapons decision ever made by a President,"⁴⁰ Reagan outlined a sweeping, six-year \$180 billion package that addressed all aspects of the triad. The Soviets and any other nations who harbored doubts about U.S. credibility and resolve under its new leadership were meant to take note that America was on the move again. At this juncture, no words were to be wasted on arms control.

Dramatizing that a different, more assertive attitude now prevailed in Washington, the President rescinded the Carter decision to cancel the B-1 bomber program. The U.S. would build 100 of these sophisticated aircraft and have the first one deployed in 1986. The production of the B-1B would be in addition to continuing to equip the current B-52 force with air-launched cruise missiles (ALCM) and proceeding with the Stealth bomber for service in the 1990s. Regarding sea-based forces, the Administration would adhere to turning out one new Trident nuclear-powered, ballistic missile firing submarine every year. Accelerated measures would be taken to provide the Trident submarines by the end of the decade with the more potent D-5 missile, which would have the capability to strike hardened Soviet targets. Further, the Navy's nuclear-powered attack submarines would be fitted with submarine launched cruise missiles (SLCM) to enable them to hit strategic targets ashore. Major emphasis would be given also to enhancing the command, control and communications network for strategic forces, so that the deterrent could be operated with maximum efficiency, security and responsiveness.

As for the remaining, land-based leg of the triad, the President wanted 100 MX missiles to modernize the ICBM force. However, he scrapped Carter's MPS basing mode, concluding that it made no sense to oblige the U.S. to build more shelters than the Soviets could add MIRVs. This was a competition the U.S. couldn't win. To be viable, the MPS deployment of MX had to be complemented by a sound arms control treaty to cap the number of Soviet ICBMs and MIRVs; otherwise, the shelter/MIRV matching could be infinite. Soviet international adventurism had precluded even ratification of SALT II, which the Administration found to permit arms levels that were far too high.

39. Edwards, op. cit., p. 233.

40. Ibid, p. 215.

In abandoning MPS, Reagan

...cancelled the scheme that had racked the Carter Administration for four years, that had already cost several billion dollars, that had been the subject of fifty volumes of reports, of innumerable pages of... .. public debate and testimony, and thousands and thousands of hours of time of the most skilled officials in... .. Washington.⁴¹

ALTERNATIVES TO MPS

Instead of MPS, the Reagan Administration proposed to put the first 36 MX in existing ICBM silos. In other words, for lack of other timely options, it had been decided to ignore one of the few straightforward recommendations of the Townes committee. When challenged on this point, Weinberger defended the choice. He ventured that MX missiles placed in existing silos would be no more vulnerable at the time of initial deployment in 1986 than in the MPS mode. MX was a vital portion of the President's strategic forces package. What the Administration was doing was to avail itself of

...an interim way of breaking the monopoly on prompt hard-target counterforce capability until the D-5 (Trident II) and more permanent MX deployments become operational.⁴²

For basing the majority of the MX missiles, Weinberger intended to pursue three of the possibilities raised by the Townes' report: the continuous airborne patrol aircraft; a ballistic missile defense system; and deep underground basing. He expected to have for Congress in 1984 the Administration's preferred solution.

While some critics of MX/MPS were delighted to discover that the costly, "Rube Goldberg" basing scheme had been junked by the President, they were chagrined to hear that he had warmly adopted the orphaned missile. As one opponent summarized his incredulity,

The MX, it appears, will be deployed in silos, for no other reason than the sheer momentum of its production process. The production and deployment of the weapon have become ends in themselves, serving no larger plan or purpose than the Administration's diffuse and inchoate desire for "strength." In termination of the MX-MPS basing mode, Reagan struck at the conceptual foundation of the entire program, depriving it of whatever strategic rationale remained from its many prior metamorphoses.⁴³

41. Edwards, op. cit., p. 216.

42. Paine, Christopher, "Running in Circles with the MX," The Bulletin of the Atomic Scientists, December 1981, p. 9.

43. Ibid, p. 10.

When similar objections arose from Congress, Weinberger, with customary elan, floated another deployment concept which the Administration promoted throughout 1982. This plan would group fixed, hardened MX missile silos tightly together. It would capitalize on this proximity so that the first attacking warhead's nuclear explosion, with its blast, dust cloud and radiation, would disrupt the effectiveness of succeeding attacking warheads. The jargon had a name for this nullifying interference: fratricide. The Administration referred blandly to its related deployment concept as Closely Spaced Basing. Those addicted to catchy -- or perhaps pejorative -- phraseology termed the design Dense Pack. It called for putting all the MX missiles in silos situated 1800 feet apart and locating them in a single, 14 by 1.5 mile, oblong field at Warren Air Force Base in Wyoming. Although the theory was appealing and offered prospect of a tantalizingly inexpensive way out of the basing dilemma, the idea of fratricide depended on presumption and mathematical calculations. Because of prohibitions on atmospheric testing of nuclear weapons, there was no means of actually proofing the theory. Without empirical evidence, no one was prepared to trust fratricide as the sole guarantor of MX survivability. Gradually, Dense Pack was quietly filed among the folders of failed concepts.

CONGRESSIONAL OPPOSITION TO MX

When Weinberger made his first Annual Report to Congress in February 1982, his funding request for fiscal year 1983 maintained the approximately \$4 billion level for MX that his predecessor had forecast, even though MPS had been scotched. Development work on interim basing and the continuing search for a permanent deployment mode evidently took up the slack. Elsewhere in the triad, about \$3 billion was sought for the Trident submarine program and the reactivated B-1B bomber surged to the front of funding for strategic offensive forces with a catch-up request of \$4.8 billion.⁴⁴

These proposed expenditures were a sub-set of the Administration's unprecedentedly ambitious plan to spend \$1.6 trillion to overhaul U.S. military forces. Though this initiative was backstopped by an energetic effort to familiarize the American public and the Hill with the ominous extent of the Soviet threat, the campaign was buffeted by a countertrend of concern from vocal parts of the intended audience about the superpower arms race. In Europe, NATO's intention to offset the destabilizing deployment of Soviet SS-20 intermediate-range nuclear ballistic missiles with Pershing II and ground-launched cruise missiles had encountered a storm of protest in countries where the weapons were to be based. This criticism was paralleled in the U.S. by a determined nuclear freeze movement that seemed to regenerate the political activist coalitions of the 1960s.

Reflecting this agitation, Administration opponents in Congress concentrated criticism on the MX program, using it as the focus of their misgivings about the President's military strategy

44. Weinberger, op. cit., p. III-57.

and his suspect commitment to arms control. Responding, Reagan asserted that the new ICBM was central to any Administration arms control negotiations. The Soviets were ahead of the U.S. in the vital category of prompt, hard-target kill capability. If the U.S. did not take steps to remedy this imbalance, the Administration would be unable to engage effectively in the Strategic Arms Reduction Talks (START) which Reagan had proposed in May, 1982. To emphasize the essentiality of the MX to deterrence, the President gave the missile a new nickname: Peacekeeper.

Congress was unpersuaded. On December 7, 1982 (the anniversary of Pearl Harbor, as the White House staff must have ruefully recalled), the House of Representatives dealt the President his first setback on his much heralded defense buildup. By a vote of 245-176, the House deleted almost \$1 billion from the MX program, including all funds for procurement of the initial increment of missiles. This "marked the first time since World War II that either house of Congress had rejected a President's request for a major weapons system."⁴⁵ Further, Congress elected to withhold fiscal year 1983 funding for MX until a report was provided to satisfy the legislators' questions on the Administration's strategic arms and arms control policies.⁴⁶

THE SCOWCROFT COMMISSION

After a glittering string of successes in gaining Congressional support for Administration programs, Reagan had received his first rebuff. The White House had lost a skirmish, but it had no intention of losing the battle for MX. Drawing on a favorite, consensus-building device, the President appointed an eminent,⁴⁷ bipartisan Commission on Strategic Forces, under the chairmanship of President Ford's National Security Advisor, General Brent Scowcroft. Beginning work in January 1983, the Commission had its recommendations ready for the President in early April.

The Commission stated that it took up its responsibilities with a clear understanding of both the risk of nuclear war and the threat of Soviet totalitarianism that characterized the nation's most serious security problem. One of the group's cardinal precepts was that "...stability should be the primary objective both of the modernization of our strategic forces and of our arms control proposals."⁴⁸ Continuing, the report found that "A one-sided strategic condition in which the Soviet Union could effectively destroy the whole range of strategic targets in the United States,

45. Facts on File. "U.S. Defense Spending: How Much is Enough?", p. 108.

46. Woolsey, R. James, "The Politics of Vulnerability," Foreign Affairs, Spring 1984, p. 810.

47. Among its 11 Members and 7 Senior Counselors, the Commission included the following former officials: 4 Secretaries of Defense; 2 Secretaries of State; and 2 CIA Directors.

48. Report of the President's Commission on Strategic Forces, p. 3.

but we could not effectively destroy a similar range of targets in the Soviet Union, would be extremely unstable over the long run."⁴⁹ This was the imbalance that had evolved.

Additionally, the Commission endorsed the importance of having the ability to put at risk those assets which the Soviets valued most, i.e., those that were vital to exercise of state control and power. This was a prerequisite for a deterrent that could span the spectrum of potential superpower conflict. The U.S. not only had to plan to prevent full-scale nuclear war, it needed to be able to demonstrate to the Soviets that aggression at any level could not yield the USSR an advantage. There was also the high probability that lesser conventional or nominally limited nuclear war would escalate to total and mutually devastating engagement.

In taking stock of U.S. nuclear forces, the Commission validated the interlocking aspects of the triad. It was necessary not to place excessive reliance on the particular strengths, nor overly denigrate the weaknesses, of any individual element of the strategic deterrent forces. They functioned as a whole and needed to be evaluated accordingly. Judged in this manner, the Commission was reassured by current programs to modernize U.S. strategic forces. It urged that top priority be given to the ongoing upgrade of related command, control and communications capabilities. The contribution of the sea-based arm was commended, with full Commission support conferred on proceeding as rapidly as possible with the Trident II (D-5) SLBM. Similarly, the Commission was satisfied with plans for improving the strategic bomber force.

However, the heart of the Commission's review and its major recommendations dealt with the future of the nation's ICBMs. The members dismissed allegations that technological change put an end to the future of ICBMs. To the contrary, the Commission defined the reasons for retaining this unique part of the triad:

- serving as a hedge against possible vulnerabilities in our submarine force;
- introducing complexity and uncertainty into any plan of Soviet attack, because of the different types of attacks that would have to be launched against our ICBMs and our bombers;
- helping to deter Soviet threats of massive conventional or limited nuclear attacks by the ability to respond promptly and controllably against hardened military targets;
- encouraging the Soviets to reach stabilizing arms control agreements;
- redressing perceived U.S. disadvantages in strategic capability.⁵⁰

49. Ibid, p. 6.

50. Ibid, p. 12.

The Commission concluded that it was a mistake to expect any single, successor ICBM to replicate the advantages manifested by Minuteman in the 1960s. Time and technological change precluded such possibility. Failure was inherent in the staff criteria imposed in recent years for

...deploying a few relatively large missiles as quickly as possible, in a single basing mode, on land, under arms control agreements limiting or reducing launcher numbers, in the face of the threat of attack by increasingly accurate and numerous warheads - and to do so in a manner that seeks to preserve ICBM survivability for the long term, even when the ICBM force is viewed in isolation.⁵¹

The Commission's solution was to discriminate between immediate and long-term ICBM force requirements.

For the near-term, the Commission recommended deploying 100 MX missiles promptly in Minuteman silos. Only MX could redress quickly the key disparity between U.S. and Soviet abilities to destroy hardened military targets. MX was almost ready for flight testing and over \$5 billion had been invested in the system. Cancelling MX would send the Soviets the wrong signal regarding U.S. will and cohesion and severely damage our strategic arms control negotiating posture. Further, it was very desirable to have a large (195,000 pounds) missile like MX in the U.S. inventory. If the Soviets chose to augment their defenses and breakout of the ABM treaty, we would need an ICBM with enough throw-weight to carry sufficient decoys and penetration aids to defeat those defenses. Actually, in terms of throw-weight and megatonnage, 100 MX amounted to a replacement for the 54 Titan missiles that the U.S. was phasing out, combined with the 100 Minuteman III that would be displaced from their silos by the MX. Finally, the Commission closed its 1983 argument on behalf of MX with an especially prescient point, considering the January 1986 Challenger 7 space shuttle disaster:

Moreover, in view of our coming sole reliance on space shuttle orbiters, it would be prudent to have in production a booster, such as MX, that is of sufficient size to place in orbit at least some of our most strategically important satellites.⁵²

As for the basing mode it recommended, the Commission was fully aware of the vulnerability of Minuteman silos. However, the Commission's concern was tempered by overall survivability of the triad and the fact that this major MX deficiency was addressed by the long-term recommendation it had for the president.

51. Ibid, p. 14.

52. Ibid, p. 17.

To complement MX, the Commission wanted development of a completely new weapon: a small, single-warhead ICBM (SICBM). The missile should weigh about fifteen tons, have accuracy and yield to permit it to attack hardened targets successfully and enter the nation's inventory of strategic forces by the early 1990s. Basing options to be examined for the SICBM should include hardened silos, shelters and, to provide full mobility, vehicle launchers. The underlying objective for the small missile would be to... so confound, complicate, and frustrate the efforts of Soviet strategic war planners that, even in moments of stress, they could not believe that they could attack our ICBM forces effectively.⁵³ Each SICBM would add to U.S. deterrence by doing much less to tempt a preemptive attack than the ten-MIRV MX. An American program of this sort might also encourage the Soviets to take a comparable step toward greater stability by turning away from such troublesome, heavy, multi-warhead ICBMs as the SS-18. Therefore, the Commission was convinced that its proposals did not contravene U.S. arms control approaches, objectives or aspirations. The Commission professed that the strategic modernization measures it advocated went hand-in-glove with arms control. Indeed, the Members felt that arms control progress would not occur without such modernization.

To insure opponents in Congress understood the Administration's attitude toward the relationship between MX and the START negotiations, Secretary Weinberger confirmed that he wanted MX for the strength it would add to America's defense, deterrence and diplomacy. Sticking to a firm line, he pointedly disabused the Soviets and domestic adversaries alike of any notion that the MX might be bartered away. In seeking over \$6.6 billion in fiscal year 1984 for the MX program, Weinberger asserted that

...this Administration is not developing the Peacemaker (MX) or any other weapon as a "bargaining chip." In its current loose usage, the term "bargaining chip" weapon has come to mean a weapon that is developed -- often at great cost -- for the sole purpose of negotiating away that very weapon. That, obviously, would be an absurd procedure.⁵⁴

Using the Scowcroft Commission's recommendations as the basis of the President's report to Congress, the White House unleashed an intensive lobbying effort to secure release of the MX funding that the House had withheld. By May 1983, Congress agreed to unfreeze \$625 million of MX development money. In July, the House and Senate approved \$2.6 billion in fiscal year 1984 funds for procuring the first 27 MX missiles (though subsequent conference committee brokering reduced this number to 21).⁵⁵ MX was back on track.

53. Ibid, p. 15.

54. Weinberger, Caspar W. Department of Defense Annual Report to the Congress, Fiscal Year 1984, p. 57

55. Facts on File, op. cit., p. 113.

In addition to the MX rescue and the emergence of the small ICBM proposal, 1983 was memorable for the advent of a major strategic system that was not part of the Presidential Commission's considerations. In fact, before the panel had presented its report, Reagan appeared before a national television audience on March 23 and made a surprise announcement regarding what he called the Strategic Defense Initiative (SDI). Rather than be reconciled to relying indefinitely on the assured destruction provided by opposing strategic offensive nuclear forces, the U.S. was embarking on an innovative research program to examine the feasibility of using new, high technologies to create a space-based and terrestrial layered defense against ballistic missiles.

All of these signal developments in U.S. strategic offensive and defensive plans were prominently featured in the Department of Defense budget request for fiscal year 1985. Over \$5 billion was sought for the MX program. Flight testing of the missile had begun in 1983 and funding emphasis had shifted from system development to production: over \$3 billion of the fiscal year 1985 proposal was earmarked for procurement of 40 missiles. This year was presented as the peak funding period for MX. The new inclusions were the small ICBM and SDI. For the former, Defense wanted \$465 million for devising system requirements and a concept of operations and evaluating designs for the missile, basing and other support aspects. The objective was to move into full-scale development in 1987. Less than a year after the President revealed SDI, or "Star Wars" as it had been immediately popularized, the research program commanded almost \$1.8 billion of the budget request, with a projection for fiscal year 1986 of \$3.8 billion, which would put it on par with the MX and Trident programs.⁵⁶

MORE CONGRESSIONAL TRIBULATIONS

While Congress had been persuaded previously by the Scowcroft Commission's report and additional entreaties by the President to authorize necessary MX funding, opponents on the Hill took another concerted stand against the Peacekeeper program during the 1984 election year. With a vigorous campaign, they succeeded in seriously eroding the Administration's 1983 margin of victory on the crucial MX vote. The House was virtually deadlocked on the issue and Vice President Bush had to cast his ballot in a key Senate vote to break a 48-48 tie and thereby preserve MX funding. Nonetheless, as a result of compromise in Senate-House Conference Committee, MX opponents were able again, much as they had in late 1982, to withhold authorization of \$1.5 billion for MX production. Essentially deferring the matter until after the election, Congress required the President to report after March 1, 1985 on the impact further MX procurement would have on U.S.-USSR arms control negotiations.⁵⁷ Until then, Congress would reserve further judgment on another increment of MX missiles.

56. Weinberger, Caspar W. Department of Defense Annual Report to the Congress, Fiscal Year 1985, p. 186.

57. Scoville, Herbert. "Congressional Cliffhanger," Bulletin of the Atomic Scientists, October 1984, p. 6.

With his mandate renewed for four more years in November, President Reagan returned to the fray on March 4, 1985 with justification for Congress to release the \$1.5 billion in blocked MX funds. Adhering adamantly to familiar Administration arguments, the President affirmed that "...continued production and deployment of the Peacekeeper (MX) missile in existing Minuteman silos is required in order to meet U.S. national security interests; is consistent with U.S. arms control policy, and enhances the prospects of global stability."⁵⁸ He emphasized that there was no alternative to MX in the near-term for redressing Soviet advantage in prompt, hard-target capability. The President also accented Peacekeeper's contribution to deterrence by averring that it was needed to

...induce caution and restraint into Soviet geo-political activities by removing any perceptions the Soviet leadership might harbor about its ability to dominate a crisis...and emerge successfully from a nuclear conflict with its most valued assets intact and its war aims achieved.⁵⁹

Amplifying on the relationship between more MX production and arms control, Reagan warned that interruption of the program would be interpreted by the Soviets as a sign of flagging U.S. resolve. Such perceived hesitancy would damage Administration efforts to obtain deep reductions in strategic arms by causing the Soviets simply to hang back in hopes of benefiting from unilateral U.S. cuts.

In rebuttal, Senate Democrats reemphasized the deficiencies of MX. Summarizing the case against MX, Senator John Glenn underscored its patent vulnerability, destabilizing first-strike capability and attractiveness as a target for a Soviet preemptive attack. Glenn also criticized the system's unjustifiable drain on strategic force funding.

Noting that the missiles were estimated to cost \$74 million each, Glenn asserted that it would take another \$180 million to harden each MX silo. In effect, Congress was being asked to approve roughly \$1 billion for every four deployed MX or a total of \$25 billion for the full force of 100 missiles sought by the Administration. In the Senator's opinion, this was wasted money. The Navy's D-5 SLBM, with a hard-target kill capability comparable to MX, would be available in the early 1990s and, if the U.S. moved with dispatch, the small ICBM could also be added to the American inventory by that time. The B-1B bomber was already strengthening the triad throughout the remainder of the 1980s. MX was both superfluous and counter-productive.⁶⁰

58. "The MX Missile: Pro and Con." Congressional Digest, June-July 1985, p. 167.

59. Ibid, p. 168.

60. Ibid, p. 171.

Supporting Glenn, Senator Dale Bumpers remarked that one of the most telling indictments of MX was the fact the Soviets had not waged a campaign to try to prevent its development. He charged that MX represented a squandering of the nation's resources that "...costs us in our efforts to reduce the deficit in a staggering way."⁶¹

DEFENSE

Reinforcing Bumpers' economic theme, Senator Tom Harkins of Iowa focused on the impact dubious MX expenditures were having on domestic spending priorities. Reflecting his constituency, Harkins stressed:

As a farm state Senator, I cannot overlook the letter from Secretary Weinberger which states, "The \$1.5 billion (for MX) will not significantly reduce the deficit." But just two weeks ago, the President vetoed our farm credit bill, which would have cost just \$245 million, because he said it was a budget-buster.⁶²

Despite such reservations, the President prevailed. Before the end of March 1985, both the Senate and the House voted to release the withheld \$1.5 billion for MX procurement.

Still, the wrangling with Congress over Peacekeeper continued. In his dogged defense of the system in his fiscal year 1986 budget request, Secretary Weinberger's determination to carry out the full MX program was tinged with frustration. He again gave his view that the U.S. had no near-term substitute for MX, observed that the program had been debated for eleven and a half years and calculated that over \$6 billion had been already invested in the system.⁶³ Persevering, Weinberger requested almost \$4 billion more for Peacekeeper, adding that the weapon would be a vital part of U.S. land-based missile forces through the 1990s and into the next century.

Though hardly unscathed, MX had maintained its momentum and traversed a long run of ferocious in-fighting between Congress and the Administration. Finally, however, huge, untenable Federal budget deficits brought an end to burgeoning defense budgets and imposed hard choices on funding for U.S. strategic offensive forces. By early 1986, preparations were firmly underway to deploy before the end of the year the first of fifty Peacekeepers in existing Minuteman silos at F.E. Warren Air Force Base in Wyoming. Although the Reagan Administration remained committed to its full 100 MX objective, Congress interceded to forestall the procurement and fielding of the second fifty missiles. The Department of Defense pledged in its fiscal year 1987 report to Congress to continue to seek a survivable basing mode to permit restoration of the residual half of the truncated program. Considering the documented resilience of Peacekeeper, eventual deployment of 100 missiles cannot be confidently dismissed. Alternatively, during a period of Gramm-Rudman-Hollings austerity, the current Congressional cap may be permanent.

61. Ibid, p. 183.

62. Ibid, p. 191.

63. Weinberger, Caspar W. Department of Defense Annual Report to the Congress, Fiscal Year 1986, p. 53.

From this point on, the fate of Peacekeeper would seem to hinge on the similarly uncertain prospects for development of Midgetman, promoted as America's next entrant in the land-based missile inventory. Acceptance of the concept of the small, mobile, single-warhead ICBM was a central element of the compromise forged between the Reagan Administration and Congress in 1983 which enabled actual deployment of the MX. Some pundits have suggested that the new weapon should be redubbed "Congressman" to indicate better its place of origin and advocacy.⁶⁴ Holding up its part of the bargain, the Reagan Administration dutifully continued to incorporate the small ICBM in its plans and budgets for future land-based strategic offensive forces. Issued on February 5, 1986, the Secretary of Defense's fiscal year 1987 Report to the Congress includes a \$1.4 billion request for full-scale development of the small ICBM system.

Yet, only a few weeks later, Under Secretary of Defense Donald A. Hicks intimated before the Senate Armed Services Committee that the Pentagon might prefer to more than double the weight of the small ICBM and equip it with three warheads, rather than one. While such potential modifications elicited strong criticism from various members of Congress, they were merely minor rumblings compared to the thunderous surprise disclosure made by the Administration in conjunction with the Reagan-Gorbachev summit meeting in Geneva in November 1985. In response to Soviet arms control proposals, the U.S. counter-offer indicated a willingness by President Reagan to ban all mobile ICBMs. By putting Midgetman on the table, the U.S. presumably would put the weapon and a move toward more stable deterrence on the block. Unless one concludes that the U.S. offer was extended for tactical, negotiating purposes, the direction and form of U.S. strategic nuclear force modernization are now difficult to discern. As General Scowcroft expressed it in testimony before the Senate Foreign Relations Committee, American nuclear policy "is in a state of confusion or disarray."⁶⁵

64. Wilson, Pete. "The President's Foundering Strategic Modernization Plea," Strategic Review, Summer 1985, p. 13.

65. Gordon, Michael R. "Study Says a Small Mobile Missile Would Help U.S. Deter Soviet Strike," New York Times, November 9, 1985, p. 4.

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CONCLUSION

For all the anxiety living in the nuclear age has brought, peace between the superpowers has endured for over four decades. If we are to maintain this condition, there is no greater imperative than insuring that the Soviet Union shares the American assertion that a nuclear war cannot be won and must never be fought. To foster and preserve this conviction, the U.S. will have to persevere in the rational, efficient modernization of its triad of strategic nuclear offensive forces, while concurrently assessing the prospects raised by the Strategic Defense Initiative.

However, review of the troubled development of the MX ICBM does not enable us to be optimistic about our ability to define and couple smoothly our national security requirements with our techno-managerial expertise, fiscal resources and domestic political demands. Nor can we be confident of combining successfully our plans for arms improvement with our pronouncements on arms control.

As the case of MX demonstrates, the process we use for making generational advances in our strategic land-based deterrent is extraordinarily complex and protracted. A decade and a half will have elapsed from the time the need for MX was perceived and the deployment of the first missile. Along the way, MX was buffeted by military service rivalries, competition for funding, shifting nuclear weapon strategies, arms control considerations, vicissitudes of U.S.-Soviet relations, internal politics and, in particular, a struggle between the Reagan Administration and MX opponents in Congress.

The MX experience illustrates the difficulty of forging a lasting consensus for specific upgrading of our ICBM force. Further, MX underscores a pernicious Washington adage: only winners ever consider a question settled; the losers merely prepare to revisit the issue. Our practice of annual budget submissions to Congress too easily affords opportunities for recycling sterile debate between the Administration and the Hill. The usual result of this prolonged process is delayed system deployment and increased system cost. More injuriously, to a perception-dependent world, America's leaders seem confused, contentious and capricious. This image of irresolution degrades superpower stability. While not a panacea, adoption of a biennial budget would clarify U.S. intentions and facilitate program implementation, without damaging either decision-making or debate.

Despite U.S. inability to resolve the fundamental dilemma of survivability, development and deployment of MX is necessary for preserving viability of the triad and, with it, the most essential aspect of our national security. Impending emplacement of MX in existing silos will help redress in the near-term the U.S.-USSR imbalance in prompt, hard-target kill capability. However, over the long-term, the vulnerability of this basing mode augments, rather than alleviates, strategic nuclear instability.

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As recommended by the Scowcroft Commission, the putative corrective for vulnerability of the land-based leg of the triad is the small, single warhead, mobile ICBM. Yet, in a disturbing echo of MX, Midgetman does not enjoy wholehearted support and, though funding and development proceed, eventual deployment of the SICBM is uncertain. At worst, both missiles may enter weapon systems' annals as exemplars of unreconciled objectives or, at best, as prime Pentagon programs that took too long and cost too much.

The chronicle of MX gives continuing currency to an observation made by a leading resources management specialist over a quarter of a century ago when he recorded that U.S.

...political as well as physical survival may well turn on the speed and efficiency with which technology is converted into weapons and weapon systems...the war in which we are engaged is no longer, and perhaps not even predominately, one of material and men; it is a war in which the economic and political factors have assumed special importance, in fact, may become the decisive factors.⁶⁶

66. Gaither, A. Rowan, quoted in Hitch, Charles J. Decision-Making for Defense, p. 4.

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